

General

Guideline Title

American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee.

Bibliographic Source(s)

Hochberg MC, Altman RD, April KT, Benkhalti M, Guyatt G, McGowan J, Towheed T, Welch V, Wells G, Tugwell P. American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. *Arthritis Care Res (Hoboken)*. 2012 Apr;64(4):465-74. [46 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. *Arthritis Rheum* 2000 Sep;43(9):1905-15.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- [August 31, 2016 – Opioid pain and cough medicines combined with benzodiazepines](#) : A U.S. Food and Drug Administration (FDA) review has found that the growing combined use of opioid medicines with benzodiazepines or other drugs that depress the central nervous system (CNS) has resulted in serious side effects, including slowed or difficult breathing and deaths. FDA is adding Boxed Warnings to the drug labeling of prescription opioid pain and prescription opioid cough medicines and benzodiazepines.
- [March 22, 2016 – Opioid pain medicines](#) : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

Hand Osteoarthritis (OA)

Base Case

An adult with symptomatic hand OA without cardiovascular comorbidities, current or past upper gastrointestinal (GI) problems, or chronic kidney disease presents to her primary care provider for treatment. She has pain in several finger joints for several months. Over-the-counter (OTC) acetaminophen at dosages up to 3 gm/day was of minimal value. Radiographs revealed osteophytes at several distal and proximal interphalangeal joints with joint space narrowing but no erosions.

The evidence base for hand OA was developed in collaboration with one of the authors; this report has subsequently been published in part. There were relatively few high-quality randomized controlled trials (RCTs) of interventions for hand OA published in the peer-reviewed literature. Therefore, there were no strong recommendations made by the Technical Expert Panel (TEP) for this indication. There are, however, several conditional recommendations that are discussed in the following sections.

Nonpharmacologic Modalities

The TEP conditionally recommends that all patients with hand OA should be evaluated by a health professional, either their primary care provider or an occupational or physical therapist, for their ability to perform activities of daily living and receive assistive devices as necessary, instruction in joint protection techniques, and the use of thermal agents for relief of pain and stiffness (see Table 1 in the original guideline document). The TEP conditionally recommends that patients with OA involving the trapeziometacarpal joint should be provided with splints, as they may benefit from this device.

Pharmacologic Modalities

The TEP conditionally recommends that patients with hand OA should be treated with either topical or oral nonsteroidal antiinflammatory drugs (NSAIDs), topical capsaicin, or tramadol (see Table 2 in the original guideline document). The TEP conditionally recommends that such patients not be treated with opioid analgesics or intraarticular therapies.

For patients with involvement of the trapeziometacarpal joint who request an intraarticular injection, the TEP conditionally recommends not using either intraarticular corticosteroids or hyaluronates and, furthermore, provided no recommendation on the choice between corticosteroids and hyaluronates, if a provider decides to give an injection. For patients with erosive and/or inflammatory interphalangeal OA, the TEP conditionally recommends not using either oral methotrexate or sulfasalazine and voted not to provide a recommendation either for or against the use of hydroxychloroquine. The recommendations not to use modalities were based largely on the absence of evidence from RCTs to support the benefits of use of these modalities and the potential for harm from these agents and/or procedures.

Knee OA

Base Case

An adult with symptomatic knee OA without cardiovascular comorbidities, current or past upper GI problems, or chronic kidney disease presents to her primary care provider for treatment. She experiences pain in and/or around her knee(s) and has not had an adequate response to either intermittent dosing of OTC (over the counter) acetaminophen, OTC NSAIDs, or OTC nutritional supplements (e.g., chondroitin sulfate, glucosamine).

Nonpharmacologic Modalities

The TEP strongly recommends that all patients with symptomatic knee OA be enrolled in an exercise program commensurate with their ability to perform these activities (see Table 3 in the original guideline document). The TEP expressed no preference for aquatic exercises as opposed to land-based exercises based on benefits or safety; the decision should be individualized and based on patient preferences and ability to perform exercises. For example, a patient who is aerobically deconditioned should initially participate in an aquatic exercise program in order to improve their aerobic capacity. Once this is accomplished, they can progress to a land-based program and choose, in conjunction with their health care provider, an aerobic conditioning or strengthening program or both. The TEP also strongly recommends that all patients with symptomatic knee OA who are overweight be counseled regarding weight loss.

The TEP conditionally recommends that patients with knee OA should 1) participate in self-management programs that may include psychosocial interventions, 2) use thermal agents and manual therapy in combination with exercise supervised by a physical therapist, 3) use medially directed patellar taping, 4) participate in tai chi programs, and 5) use walking aids, if necessary. Patients with lateral compartment OA are conditionally recommended to wear medially wedged insoles, while those with medial compartment OA are conditionally recommended to wear laterally wedged subtalar strapped insoles.

Pharmacologic Modalities

For the base case failing to obtain adequate pain relief with intermittent dosing of OTC acetaminophen, OTC NSAIDs, and/or OTC nutritional supplements (e.g., chondroitin sulfate, glucosamine), the TEP conditionally recommends that health care providers can use acetaminophen, oral or topical NSAIDs, tramadol, or intraarticular corticosteroid injections (see Table 4 in the original guideline document). The TEP conditionally recommends that health care providers do not use nutritional supplements (e.g., chondroitin sulfate, glucosamine) or topical capsaicin. If the health care provider chooses to initiate acetaminophen in the full dosage up to 4,000 mg/day, the patient should be counseled to avoid all other products that contain acetaminophen, including OTC cold remedies as well as combination products with opioid analgesics.

If the patient does not have a satisfactory clinical response to full-dose acetaminophen, then the TEP strongly recommends the use of oral or topical NSAIDs or intraarticular corticosteroid injections. Health care providers should not use oral NSAIDs in patients with contraindications to these agents and should be aware of the warnings and precautions associated with the use of these agents. Furthermore, for persons age ≥ 75 years, the TEP strongly recommends the use of topical rather than oral NSAIDs. In this scenario, the TEP conditionally recommends the use of tramadol, duloxetine, or intraarticular hyaluronan injections. If the patient has a history of a symptomatic or complicated upper GI ulcer but has not had an upper GI bleed in the past year and the practitioner chooses to use an oral NSAID, the TEP strongly recommends using either a cyclooxygenase 2 (COX-2) selective inhibitor or a nonselective NSAID in combination with a proton-pump inhibitor; there was no preference expressed between these choices. In the clinical scenario where the above patient has had an upper GI bleed within the past year and the practitioner still chooses to use an oral NSAID, the TEP strongly recommends using a COX-2 selective inhibitor in combination with a proton-pump inhibitor. Subsequent to the initial meeting of the TEP, it was reported that the addition of a proton-pump inhibitor to either a nonselective or COX-2 selective NSAID is cost effective given the evolving evidence base for efficacy and reductions in price. Therefore, whenever an NSAID is used for the chronic management of patients with knee or hip OA, the practitioner should consider adding a proton-pump inhibitor to reduce the risk of development of symptomatic or complicated upper GI events.

In the clinical scenario where the patient with OA is taking low-dose aspirin (≤ 325 mg per day) for cardioprotection and the practitioner chooses to use an oral NSAID, the TEP strongly recommends using a nonselective NSAID other than ibuprofen in combination with a proton-pump inhibitor. This recommendation is based, in part, on the Food and Drug Administration (FDA) warning that the concomitant use of ibuprofen and low-dose aspirin may render aspirin less effective when used for cardioprotection and stroke prevention because of a recognized pharmacodynamic interaction. Studies have not demonstrated this same type of pharmacodynamic interaction with diclofenac or celecoxib; nonetheless, the TEP strongly recommends that a COX-2 selective inhibitor should not be used in the above situation. No specific recommendation was made regarding other individual NSAIDs.

Based on good clinical practice, oral NSAIDs should not be used in patients with chronic kidney disease stage IV or V (estimated glomerular filtration rate below 30 cc/minute); the decision to use an oral NSAID in patients with chronic kidney disease stage III (estimated glomerular filtration rate between 30 and 59 cc/minute) should be made by the practitioner on an individual basis after consideration of the benefits and risks.

Finally, for patients with symptomatic knee OA who have not had an adequate response to both nonpharmacologic and pharmacologic modalities and are either unwilling to undergo or are not candidates for total joint arthroplasty, the TEP strongly recommends the use of opioid analgesics and conditionally recommends the use of duloxetine. The authors suggest that practitioners follow the recommendations of the American Pain Society/American Academy of Pain Medicine for the use of opioid analgesics in the management of their chronic noncancer pain. These recommendations provide guidance on 1) patient selection and risk stratification, 2) informed consent and opioid management plans, 3) initiation and titration of chronic opioid therapy, 4) monitoring of patients on chronic opioid therapy, including dose escalations, high-dose opioid therapy, opioid rotation, and indications for discontinuation of therapy, 5) prevention and management of opioid-related adverse effects, and 6) management of breakthrough pain.

Treatment with traditional Chinese acupuncture or instruction in the use of transcutaneous electrical stimulation are conditionally recommended only when the patient with knee OA has chronic moderate to severe pain and is a candidate for total knee arthroplasty but either is unwilling to undergo the procedure, has comorbid medical conditions, or is taking concomitant medications that lead to a relative or absolute contraindication to surgery or a decision by the surgeon not to recommend the procedure (see Table 3 in the original guideline document).

Hip OA

Base Case

An adult with symptomatic hip OA without cardiovascular comorbidities, current or past upper GI problems, or chronic kidney disease presents to her primary care provider for treatment. As few trials have been performed in patients with symptomatic hip OA, the TEP considered that patients with hip OA should be treated in a similar fashion to those with knee OA except for selected differences.

Nonpharmacologic Modalities

The TEP strongly recommends that all patients with symptomatic hip OA be enrolled in an exercise program commensurate with their ability to perform these activities (see Table 5 in the original guideline document). The TEP expressed no preference for aquatic exercises as opposed to land-based exercises based on benefits or safety; the decision should be individualized and based on patient preferences and the ability to perform exercises. The TEP strongly recommends that all patients with symptomatic hip OA who are overweight be counseled regarding weight loss.

The TEP conditionally recommends that patients with hip OA should 1) participate in self-management programs that may include psychosocial interventions, 2) use thermal agents and manual therapy in combination with exercise supervised by a physical therapist, and 3) use walking aids, if necessary. Interventions for which data are available only for knee OA and not hip OA were not considered for patients with only hip OA (e.g., insoles, patellar taping, acupuncture, transcutaneous electrical stimulation, tai chi).

Pharmacologic Modalities

The approach to pharmacologic therapy for the patient with hip OA is similar to that for the patient with knee OA except that no recommendations were made for intraarticular hyaluronates, duloxetine, or topical NSAIDs because of the lack of data from RCTs on either benefit or safety at the time of the TEP meeting in December 2008 (see Table 6 in the original guideline document). Again, opioid analgesics are strongly recommended only for patients with symptomatic hip OA who have not had an adequate response to both nonpharmacologic and pharmacologic modalities and are either unwilling to undergo or are not candidates for total joint arthroplasty.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Osteoarthritis of the hand, hip, or knee

Guideline Category

Management

Treatment

Clinical Specialty

Family Practice

Geriatrics

Internal Medicine

Orthopedic Surgery

Physical Medicine and Rehabilitation

Rheumatology

Intended Users

Advanced Practice Nurses

Chiropractors

Nurses

Occupational Therapists

Physical Therapists

Physician Assistants

Physicians

Guideline Objective(s)

- To present evidence-based recommendations for the medical management of osteoarthritis of the hand, hip, and knee
- To update the American College of Rheumatology (ACR) 2000 recommendations for hip and knee osteoarthritis (OA) and develop new recommendations for hand OA.

Target Population

Patients with osteoarthritis of the hand, hip, and/or knee

Interventions and Practices Considered

Nonpharmacologic Therapy

1. Patient education
2. Self-management programs
3. Psychosocial interventions
4. Weight loss (if overweight)
5. Aerobic exercise or resistance land based exercise programs
6. Aquatic exercise
7. Thermal agents
8. Manual therapy in combination with supervised exercise
9. Walking aids
10. Patellar taping
11. Tai chi
12. Lateral/medial-wedged insoles
13. Occupational therapy
14. Acupuncture
15. Transcutaneous electrical stimulation
16. Assistive devices for activities of daily living

Pharmacologic Therapy

1. Oral
 - Acetaminophen
 - Cyclooxygenase 2 (COX-2)-specific inhibitor
 - Nonselective nonsteroidal antiinflammatory drug (NSAID) plus a proton pump inhibitor
 - Nutritional supplements
 - Other analgesics – tramadol or other opioids
2. Intraarticular
 - Glucocorticoids
3. Topical:
 - Capsaicin
 - Trolamine salicylate
 - NSAIDs

Major Outcomes Considered

- Degree of pain relief
- Degree of mobility
- Health-related quality of life
- Side effects of therapy

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Searches of Patient Registry Data

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Initial Systematic Literature Review

Systematic literature searches were conducted by a working group at the University of Ottawa, which also organized the summary evidence profiles and supporting documents. Systematic literature searches were performed for more than 50 different nonpharmacologic and pharmacologic modalities that were previously identified by separate expert panels; note that tramadol was considered separately from opioid analgesics because the central analgesic effect of tramadol is thought to be mediated not only by a weak opioid receptor agonist effect but also through modulation of serotonin and norepinephrine levels. Literature searches were not performed for medications that are not commercially available in the United States (US) and Canada. The initial searches were conducted in Medline (1950–2009), EMBASE (1980–2009), and The Cochrane Library (issue 3, 2009) by applying database subject headings and relevant keywords (see Supplementary Appendix A for the search strategy employed for exercise, available in the online version of this article at [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)2151-4658](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)2151-4658)). Published search filters were modified and used to limit the search to specific high-quality study designs. The initial searches for pharmacologic modalities were conducted during the third and fourth quarters of 2008, while those for the nonpharmacologic modalities were conducted during the second and third quarters of 2009.

The goal of the literature search was to identify the most current systematic review(s) and meta-analysis(es) that would provide reliable estimates of benefits of the intervention for the prespecified clinically relevant outcomes of pain and function as well as providing data on safety of the intervention; clinically relevant safety outcomes differed by type of intervention. If no systematic review or meta-analysis was available, the search results were screened for randomized controlled trials (RCTs). If more than 1 systematic review or RCT was identified for the modality and outcomes of interest, the quality of the systematic review or RCT was assessed in order to select the best-quality evidence. Observational studies on safety of interventions were included if there were no RCTs. Data from the Food and Drug Administration (FDA) Adverse Event Reporting System and unpublished data from product manufacturers or investigators were not solicited, as adequate denominator populations are often not available to allow the calculation of numbers needed to harm.

Updating the Literature Review

The initial literature searches were updated during the first quarter of 2011 with a cutoff date of December 31, 2010 by the American College of Rheumatology (ACR) staff using the identical methodology and search filters as in the original searches. The results of the updated literature search of pharmacologic agents were reviewed by physician members of the project's Steering Committee to identify studies that might provide information on new treatments or new information on the efficacy or safety/tolerability of existing treatments. The results of the updated literature search for nonpharmacologic modalities were reviewed by the rheumatology health professionals who were members of a Technical Expert Panel (TEP) to identify studies that might provide new information on the efficacy or safety/tolerability of existing modalities.

Systematic evidence-based literature reviews were conducted by a working group at the Institute of Population Health, University of Ottawa, and updated by ACR staff to include additions to bibliographic databases through December 31, 2010.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus (Committee)

Expert Consensus (Delphi Method)

Weighting According to a Rating Scheme (Scheme Not Given)

Rating Scheme for the Strength of the Evidence

The quality of the evidence was rated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Past American College of Rheumatology (ACR) recommendations for the management of hip and knee OA were derived by a small group using an informal consensus approach following an extensive literature review. Since then, the methodology used to develop clinical practice guidelines has matured with the use of systematic literature reviews and the implementation of the Delphi method for development of consensus agreement on propositions or the RAND/University of California, Los Angeles Appropriateness Method for determining when the use of certain therapeutic modalities is appropriate in a given clinical scenario.

Once the literature review was completed, the TEP was asked to evaluate the evidence and formulate recommendations for osteoarthritis (OA) treatment in the situations outlined in the clinical scenarios (see the "Description of Methods Used to Formulate the Recommendations" field). First, the TEP was provided with summaries of the best available evidence for all interventions, including evidence profiles for each intervention for the prespecified clinically important outcomes, which provided summary data on the benefits and safety of each modality. These summaries also included, for each modality examined, the percentage of patients who clinically improved in both control and treatment groups, estimated effect size, number needed to treat, number needed to harm, and a complete quality assessment of the evidence.

The summary data from the systematic literature review that were provided to the TEP before its meetings are available as supplementary files in the online version of this article at [http://onlineibrary.wiley.com/journal/10.1002/\(ISSN\)2151-4658](http://onlineibrary.wiley.com/journal/10.1002/(ISSN)2151-4658) . These data include not only the citations for the most relevant systematic reviews and/or randomized clinical trials and how to interpret them (in the OA guideline development process document; see the "Availability of Companion Documents" field), but also the summary of findings tables indicating the efficacy and safety/tolerability of pharmacologic modalities for hip and knee OA, duloxetine, nonpharmacologic modalities for hip and knee OA, and updated tai chi. In addition, the top-line citations for each treatment modality that were used for the development of the summary of findings tables are included in Supplementary Appendix B (available in the online version of this article at [http://onlineibrary.wiley.com/journal/10.1002/\(ISSN\)2151-4658](http://onlineibrary.wiley.com/journal/10.1002/(ISSN)2151-4658)).

Methods Used to Formulate the Recommendations

Expert Consensus (Delphi)

Description of Methods Used to Formulate the Recommendations

Past American College of Rheumatology (ACR) recommendations for the management of hip and knee osteoarthritis (OA) were derived by a

small group using an informal consensus approach following an extensive literature review. Since then, the methodology used to develop clinical practice guidelines has matured with the use of systematic literature reviews and the implementation of the Delphi method for development of consensus agreement on propositions or the RAND/University of California, Los Angeles Appropriateness Method for determining when the use of certain therapeutic modalities is appropriate in a given clinical scenario. The current recommendations were developed using the Grading of Recommendation Assessment, Development and Evaluation (GRADE) approach, a formal process to develop recommendations that are as evidence based as possible. It was used by a Technical Expert Panel (TEP) comprised of various stakeholders to formulate the recommendations for the use of nonpharmacologic and pharmacologic modalities for OA of the hand, hip, and knee.

Forming the TEP and Developing Clinical Scenarios

While the initial literature review was being completed, a TEP was convened (members of the TEP are shown in Appendix A of the original guideline document). The TEP included nationally recognized academic and practicing rheumatologists, primary care physicians, physiatrists, geriatricians, orthopedic surgeons, and occupational and physical therapists. The TEP was asked initially to develop a series of clinical scenarios representing patients with hand, hip, or knee OA who presented for management decisions. The scenarios included a base case of a patient with symptomatic hand, hip, or knee OA; clinical variations of the base case scenario depended on specific joint groups involved for hand OA and the lack of a satisfactory response and/or the presence of comorbidities for hip and knee OA. The scenarios were collated and then submitted to the ACR Board of Directors for review.

Recommendation Development

The TEP received the final set of clinical scenarios; instructions on the use of the GRADE process; the American College of Rheumatology (ACR) White Paper on the use of nonsteroidal antiinflammatory drugs (NSAIDs); Agency for Healthcare Research and Quality (AHRQ) reports on the use of nonopioid analgesics for OA and treatment of primary and secondary knee OA; the European League Against Rheumatism (EULAR) recommendations for the management of OA of the hand, hip, and knee; the American Academy of Orthopaedic Surgeons (AAOS) recommendations for the management of knee OA; the Osteoarthritis Research Society International (OARSI) recommendations for the management of OA of the hip and knee; the American Heart Association Scientific Statement on the use of NSAIDs; and the American College of Cardiology Foundation consensus recommendations on reducing the risk of gastrointestinal (GI) adverse events in patients using antiplatelet and NSAID therapy. The TEP also considered drug-specific indications, contraindications, and warnings from product information labels from the US FDA.

Next, using a 5-point Likert scale, panelists were asked to use the evidence reports to make a recommendation for each pharmacologic modality as applied to each clinical scenario; nonpharmacologic modalities were evaluated for the base cases of hand, hip, and knee OA, as well as hand OA with involvement of the trapeziometacarpal joint (see the "Rating Scheme for the Strength of the Recommendation" field).

Based on initial TEP member feedback, an initial set of recommendations was drafted.

Initial voting was done privately with votes submitted electronically using Excel spreadsheets (Microsoft). The TEP met in person in December 2008 to complete the pharmacologic recommendations for hand, hip, and knee OA and the nonpharmacologic recommendations for hand OA. If consensus was not achieved with private voting, further discussion of the modality was conducted at the meeting with open voting and group discussion until consensus was achieved. Subsequently, the TEP met by conference call in September 2009 to complete the nonpharmacologic recommendations for hip and knee OA. Prior to the conference call, the TEP members were provided with summary data on the benefits and safety of each nonpharmacologic modality reviewed. Again, initial voting was done privately with votes submitted electronically using Excel spreadsheets. If consensus was not achieved with private voting, further discussion of the modality was conducted at the meeting with open voting and group discussion until consensus was achieved. Throughout the voting process, if one or more members of the TEP reported a conflict of interest concerning any specific modality, they were encouraged to recuse themselves from the discussion and voting on that modality.

The final set of recommendations was drafted after discussion of the evidence at each TEP meeting. Consensus was defined as 75% or more of the members of the TEP voting to either strongly or conditionally recommend using a modality, either strongly or conditionally recommend not using a modality, or choosing not to make a recommendation on the use of a modality. A strong recommendation for using a modality required high-quality evidence and evidence of a large gradient of difference between desirable and undesirable effects of the treatment (i.e., benefits compared to harms). A conditional recommendation for using a modality was based on absence of high-quality evidence and/or evidence of only a small gradient of difference between desirable and undesirable effects of the treatment. In addition, when there was more uncertainty and/or variability in the values and preferences of the TEP members for a specific modality, this more likely resulted in a conditional recommendation. The lack of data from appropriate RCTs resulted in either not making a recommendation or making a recommendation not to use a modality, depending on the harms of the modality in other conditions and/or the values and preferences of TEP members. The recommendations of the TEP focus on the initiation of treatments for OA of the hand, hip, and knee. Costs of care were not considered in formulating these recommendations.

Rating Scheme for the Strength of the Recommendations

The strength of a recommendation reflects the quality of the evidence supporting the use of the modality as well as the extent to which one can be confident that desirable effects (i.e., benefits) of an intervention outweigh undesirable effects (i.e., harms). Strong recommendations mean that most informed patients would choose the recommended management and that clinicians can structure their interactions with patients accordingly. Conditional recommendations mean that the majority of informed patients would choose the recommended management but many would not, so clinicians must ensure that patients' care is in keeping with their values and preferences.

Cost Analysis

Latimer and colleagues reported that the addition of a proton-pump inhibitor to either a nonselective or cyclooxygenase 2 (COX-2) selective nonsteroidal antiinflammatory drug (NSAID) is cost effective given the evolving evidence base for efficacy and reductions in price.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Following manuscript development, a draft was submitted to the American College of Rheumatology (ACR) Guideline Subcommittee, ACR Quality of Care Committee, and ACR Board of Directors for their comments and votes in regard to approval. These comments were incorporated into the final recommendations to the extent possible.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

These recommendations represent evidence- and expert consensus-based recommendations.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of patients with osteoarthritis of the hand, hip, and/or knee

Potential Harms

Potential adverse effects of pharmacologic and nonpharmacologic treatment, including gastrointestinal problems

Special Populations

- For persons age ≥ 75 years, the Technical Expert Panel (TEP) strongly recommends the use of topical rather than oral nonsteroidal antiinflammatory drugs (NSAIDs).
- In the clinical scenario where the patient with osteoarthritis (OA) is taking low-dose aspirin (≤ 325 mg per day) for cardioprotection and the practitioner chooses to use an oral NSAID, the TEP strongly recommends using a nonselective NSAID other than ibuprofen in combination with a proton-pump inhibitor. This recommendation is based, in part, on the Food and Drug Administration (FDA) warning that the concomitant use of ibuprofen and low-dose aspirin may render aspirin less effective when used for cardioprotection and stroke prevention because of a recognized pharmacodynamic interaction. Studies have not demonstrated this same type of pharmacodynamic interaction with diclofenac or celecoxib; nonetheless, the TEP strongly recommends that a cyclooxygenase 2 (COX-2) selective inhibitor should not be used

in the above situation.

- The decision to use an oral NSAID in patients with chronic kidney disease stage III (estimated glomerular filtration rate between 30 and 59 cc/minute) should be made by the practitioner on an individual basis after consideration of the benefits and risks. See also the "Contraindications" field.

Contraindications

Contraindications

Based on good clinical practice, oral nonsteroidal antiinflammatory drugs (NSAIDs) should not be used in patients with chronic kidney disease stage IV or V (estimated glomerular filtration rate below 30 cc/minute).

Qualifying Statements

Qualifying Statements

- Guidelines and recommendations developed and/or endorsed by the American College of Rheumatology (ACR) are intended to provide guidance for particular patterns of practice and not to dictate the care of a particular patient. The ACR considers adherence to these guidelines and recommendations to be voluntary, with the ultimate determination regarding their application to be made by the physician in light of each patient's individual circumstances. Guidelines and recommendations are intended to promote beneficial or desirable outcomes but cannot guarantee any specific outcome. Guidelines and recommendations developed or endorsed by the ACR are subject to periodic revision as warranted by the evolution of medical knowledge, technology, and practice.
- Applying these recommendations in clinical practice requires individualized assessment of the patient and consideration of the values and judgments of both the practitioner and the patient. The recommendations provided here are not intended to be used in a "cookbook" fashion, but rather to provide guidance based on clinical evidence and expert panel input. Unlike previous ACR recommendations for the management of osteoarthritis (OA), these recommendations do not recommend the sequence of subsequent interventions for those failing to have an adequate response to recommended initial therapies, as there are few, if any, high-quality studies that were designed to examine the benefit and safety of specific modalities under such assumptions. Although disseminated under the aegis of the ACR, the developers hope that these recommendations will have relevance to practitioners throughout the world. The developers specifically did not make recommendations regarding the use of pharmacologic agents that are not approved in the United States (US) and Canada, however, or regarding the use of surgical interventions, as this was beyond the scope of the charge to the committee.
- Therapies that were approved after the literature reviews are not included in these recommendations.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Foreign Language Translations

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Hochberg MC, Altman RD, April KT, Benkhalti M, Guyatt G, McGowan J, Towheed T, Welch V, Wells G, Tugwell P. American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. *Arthritis Care Res (Hoboken)*. 2012 Apr;64(4):465-74. [46 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2000 Sep (revised 2012 Apr)

Guideline Developer(s)

American College of Rheumatology - Medical Specialty Society

Source(s) of Funding

American College of Rheumatology (ACR)

Guideline Committee

Technical Expert Panel

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Financial Disclosures/Conflicts of Interest

Dr. Hochberg has received consultant fees (less than \$10,000 each) from Abbott Laboratories, Amgen, AstraZeneca, Bayer Health Care, Bioiberica, Bristol-Myers Squibb, CombinatoRx, Covidien, Eli Lilly, Genentech, GlaxoSmithKline, Hoffman-La Roche, Merck, Merck Serono International, NicOx, Novartis, Pfizer, Pozen, Rand Corporation, Sanofi-Aventis, Smith & Nephew, Stryker Biotech, TransPharma Medical, and UCB, receives research support from the NIH, serves as a member/chair of the data safety monitoring boards for the National Eye Institute and Novartis, and serves on the medical advisory board for and owns stock in Theralogix. Dr. Altman has received consultant fees, speaking fees, and/or honoraria (less than \$10,000 each) from Ferring, Rotta, Endo, Novartis, Lilly, and Smith & Nephew. Dr. Towheed has received speaking fees from and/or serves on the advisory board for Amgen, Novartis, Bristol-Myers Squibb, Hoffman-La Roche, and Schering (less than \$10,000 each). Dr. Tugwell has received consultant fees (more than \$10,000 each) from Abbott, Almirall, AstraZeneca, Aventis, Berlex, Biomatrix, Bristol-Myers Squibb, Caduceus Group, Centocor, Chelsea, Dimedix, Dimethaid, Eli Lilly, Glaxo-Welcome, GlaxoSmithKline, Hoechst Marion Roussel, Immunomedics, Innovus, Johnson & Johnson, Larvol, Lilly Research, Medicine Group, Medicus, Merck, Merck Frosst, Novartis, Novopharm, Ortho McNeil, Pennside, Pfizer, Roche, Sandoz, Scios, Searle, Teva Pharmaceuticals, UCB, and Wyeth Ayerst, and has received grant support from Aventis, Biomatrix, Cigna, Genzyme, IDRC, Merck, Novartis, Parke-Davis, Pfizer, Rhone-Poulenc, Sandoz, and Smithkline Beecham.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. *Arthritis Rheum* 2000 Sep;43(9):1905-15.

Guideline Availability

Electronic copies: Available from the [Arthritis Care and Research Journal Web site](#) .

Print copies: Available from the American College of Rheumatology, 1800 Century Place, Suite 250, Atlanta, GA 30345.

Availability of Companion Documents

The following is available:

- Supplementary information, including the osteoarthritis guideline development process, literature search strategies, and information on various pharmacologic and nonpharmacologic interventions is available from the [Arthritis Care and Research Journal Web site](#) .

Patient Resources

The following are available:

- Information for parents about NSAIDs. 2010. 4 p. Available in Portable Document Format (PDF) from the [American College of Rheumatology \(ACR\) Web site](#) .
- Osteoarthritis. 2012 Feb. 5 p. Available in PDF from the [ACR Web site](#) . Also available in Spanish from the [ACR Web site](#) .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and

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NGC Status

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